

21. (NEW) A putter-head for imparting a positive rate ( $S$ ) of topspin on a golf ball for impacts with the ball throughout a range of impact height ( $h_i$ ) extending above 5 millimeter from the bottom of the putter-head, wherein the head has a center of mass located at a distance  $p$  millimeter behind its impact face and a height  $h_c$  millimeter above the bottom of the head, a mass  $M$  kilogram and a radius of gyration  $K$  millimeter about the heel-toe axis through the center of mass, and the loft ( $\alpha$ ) of the impact face increases monotonically with height from 5 to 15 millimeter above the bottom of the putter-head, and wherein:

$$(a) \quad K^2/p > 5$$

and

$$(b) \quad S = S_G + S_L$$

where the spin rates  $S_G$  and  $S_L$  expressed as percentages, are as follows:

$$S_G = (250 \times h) / [(3.2 + 70 \times M) \times (K^2/p) + p]$$

$$S_L = (-0.76 \times \alpha) / [1 + 0.04 \times (p/K)^2]$$

for which:

$$h = h_i - h_c - p \times \sin(\alpha_i)$$

and

$\alpha_i$  degrees is the impact-face loft at height  $h_i$  millimeter.

22. (NEW) The putter-head according to claim 21, wherein the loft ( $\alpha_{15}$ ) at 15 millimeter above the bottom of the head is at least 3 degrees larger than the loft ( $\alpha_5$ ) at 5 millimeter above the bottom of the head.

23. (NEW) The putter-head according to claim 22, wherein  $\alpha_{15}$  is at least 5 degrees larger than  $\alpha_5$ .

24. (NEW) The putter-head according to claim 23, wherein  $\alpha_{15}$  is at least 7 degrees larger than  $\alpha_5$ .

25. (NEW) The putter-head according to claim 21, wherein S is at least +2.5%.

26. (NEW) The putter-head according to claim 25, wherein S is at least +5.0%.

27. (NEW) The putter-head according to claim 21, wherein the head also imparts a positive rate (S) of topspin of at least 5.0% for impacts with the ball throughout a range of impact height ( $h_c$ ) extending above 2.5 millimeter from the bottom of the putter-head.

28. (NEW) The putter-head according to claim 21, wherein  $h_c$  is less than 10 millimeter.

29. (NEW) The putter-head according to claim 28, wherein  $h_c$  is not more than 7 millimeter.

30. (NEW) The putter-head according to claim 21, wherein the ratio  $K^2/p$  is more than 5 millimeter.

31. (NEW) The putter-head according to claim 30, wherein the ratio  $K^2/p$  is not less than 8 millimeter.

32. (NEW) The putter-head according to claim 31, wherein  $p$  is at least 10 millimeter.

33. (NEW) The putter-head according to claim 32, wherein  $p$  is less than 35 millimeter.

34. (NEW) The putter-head according to claim 33, wherein  $p$  is less than 30 millimeter.

35. (NEW) The putter-head according to claim 21, including shaft-attachment means and wherein a putter-shaft is attached to the head via the shaft-attachment means and the horizontal offset of the axis of the shaft from the heel-toe axis is less than the radius of the shaft at the shaft-attachment means.

36. (NEW) The putter-head according to claim 35, wherein the shaft-attachment means has zero horizontal offset from the heel-toe axis.

37. (NEW) The putter-head according to claim 35, wherein the horizontal displacement of the shaft-attachment means from the center of mass is less than the radius of gyration  $K$ .

38. (NEW) The putter-head according to claim 21, wherein the impact face includes an upper, flat portion having positive loft.

39. (NEW) The putter-head according to claim 21, wherein the impact face includes a lower portion which is curved and has loft that increases from a negative value to a positive value upwardly from the bottom of the head.

40. (NEW) The putter-head according to claim 21, wherein the impact face includes a lower, flat portion having negative loft.